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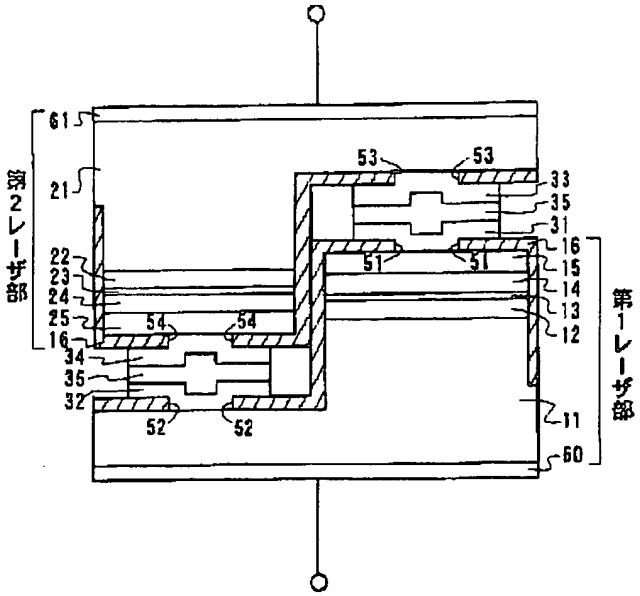
TITLE : TWO-WAVELENGTH SEMICONDUCTOR LASER ELEMENT AND ITS MANUFACTURE



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ABSTRACT : PROBLEM TO BE SOLVED: To generate laser beams of different emission characteristics by forming electrically connecting the p-side and n-side electrodes of a first laser portion having each p-side and n-side electrode and a multilayer construction of an n-type semiconductor layer, a p-type semiconductor layer, and an active layer, to the n-side and p-side electrodes of a second laser portion respectively.

SOLUTION: As a GaN laser having ridge construction, a multilayer construction of an n-type AlGaN clad layer 12, an active layer 13, a p-type AlGaN clad layer 14, and a p-type GaN contact layer 15 is formed on an n-type GaN layer 11, to make a first laser portion. The top parts of the contact layer 15 and the GaN layer 11 are covered with an insulating layer 16 of SiO2, forming apertures 51, 52 in parts of the contact layer 15 and the GaN layer 11. In addition, an Ni electrode layer 31 is arranged on the contact layer 15 with the aperture 51 between, and a Ti-Au electrode layer 32 is on the GaN layer 11 with the aperture 52 between. A second laser portion is made as an AlGaAs laser of ridge construction by forming a multilayer construction of an n-type AlGaAs clad layer 22, an active layer 23, a p-type AlGaAs clad layer 24 and a p-type GaAs contact layer 25 laminated on an n-type GaAs board 21, and covering the top part with an insulating layer 16, forming apertures 53, 54 in parts of the contact layer 25 and the GaAs substrate 21, and the (n) and (p) electrodes of the first and second laser portions are connected.

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